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 Review

**A critical assessment of the incomplete contracts theory for private participation in public services: the case of water sector in Ghana**

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**Abstract:** This paper provides a critical analysis of the recent developments in the incomplete contracts theory and its conclusions for privatisation of public services. Drawing upon a case study of management contract for urban water services in Ghana and highlighting the flaws in the theory, the paper argues that contractual incompleteness does not provide a uniform guidance on efficient forms of ownership. We argue that methodological individualism utilised in the theory is particularly ineffective for its application to public services where direct or indirect contractual role of the state cannot be eliminated. The sterility of the theory with respect to political, institutional and distributional context of public service delivery is identified as an important weakness.

# **A critical assessment of the incomplete contracts theory for private participation in public services: the case of water sector in Ghana**

## **1. Introduction**

The theory of incomplete contracts (TIC) has been a prominent development in microeconomics. This is reflected by Williamson's recent work in which he assigned a more primary role to contractual hazards and incompleteness for economic analysis and suggested an argument for 'examining economic organisation through the lens of contract' (2002a, 2002b, 2003a, 2003b). The theory has been used to explain the existence of firms, integration, delegation and authority, domination of debt for financing, intra-firm trade and public versus private ownership or management (Aghion and Holden 2011).

In this article, we focus on the conclusions of the TIC for public versus private ownership with reference to public services. We do not dispute that long-term contracts are incomplete. This is well established and the views on this, as pointed out by Hodgson (2003), could be taken back to Durkheim. Our principal argument is that the TIC provides no guidance on efficient forms of ownership for public services contrary to the claims made by Hart et al (1997) and Hart (2003). In particular, our research highlights the following issues. The methodological individualism utilised by the TIC scholars is particularly ineffective for its application to public services where direct or indirect contractual role of the state cannot be eliminated. Contracts between individuals are fundamentally different from contracts between the state agencies and private sector or those whose principal terms are determined by public agencies through regulation or licensing. Moreover, the TIC relies on future contingencies to explain contractual incompleteness. Had it not been sterile of political, institutional and distributional factors, it would have been able to explain contractual incompleteness even in the

absence of uncertainty. We argue that when such factors are taken into account, the problem of hold-up which is assumed to be inflicting the public sector, could also result in private sector holding up the state.

In this paper, following an outline of the TIC in the next section, a discussion of its relevance to a case study of private participation through a management contract in the water sector of Ghana is presented in Section 3. A critical assessment of the TIC and its drawbacks for application to public services is provided in Section 4 on the basis of the evidence from the case study. The choice of the case study presented here is instrumental for the analysis of the TIC as it reveals the importance of context (i.e. a developing country with pressing economic, political and institutional problems). Water as an essential public service with externalities, in a country where access and affordability problems prevail, helps us highlight the importance of social welfare and distributional issues. The potential implications of this analysis are indicated by the trend of which this case study is typical: that of the contractual engagement of the private sector in water service provision – as well as other public services. From 1991 to 2010, 734 privatisation projects have been implemented in the water sector across the world. Of these, 54 per cent involved private sector through long-term contracts (concession, lease and management contracts). The extent of cancellation or disputes in the total has been 33 percent (World Bank 2010), signalling the problematic nature of these contracts.

**2. The theory of incomplete contracts and its verdict on public versus private ownership**

A formal analysis of incomplete contracts theory is jointly presented in numerous articles by Sanford Grossman, Oliver Hart and John Moore (GHM)<sup>1</sup>. Qualified assumptions are made about agents’ rationality and absence of uncertainty in that the agents are considered to be aware *ex ante* of manifold future contingencies or the states of the world *ex post* that will affect the outcomes of the contract but describing these in sufficient detail in the contract is costly. Contracting parties are assumed to operate in an economic environment of symmetric but unverifiable information (e.g. that relating to effort) so that they observe the same as to what transpires in the process, leading up to the point of exchange but these could not be verified by third parties such as courts.

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3 A typical setting in GHM's work starts with a competitive tender, transformed into bilateral  
4 monopoly between a buyer and seller once the contract is awarded. There is often relationship specific  
5 investment where one or more of the following elements of the transaction are considered  
6 unforeseeable ex-ante and unverifiable ex-post: nature of good, amount of effort and investment –with  
7 implications for the price and quantity of output and hence for the division of surplus between  
8 contractual parties. Because the specification of every possible future contingency or their verification  
9 is costly most long-term contracts are considered to be incomplete. In the presence of non-contractible  
10 investments (e.g. effort to innovate and cut costs) the ex-post efficient outcome cannot be achieved  
11 after uncertainty is resolved –unlike in the Coasian (1960) world with renegotiation and side  
12 payments. Under the incomplete contracts framework, renegotiation may mean that the investor will  
13 have to share the benefits of his/her efforts with the other party. Anticipating this possibility, one of  
14 the parties under-invests or shades his/her services. This is the source of inefficiency or under-  
15 optimality in the TIC. Integration of economic activities subject to the contract and allocation of  
16 property rights to one party can solve the problem (Grossman and Hart 1986, Hart and Moore 1988  
17 and 1999).

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19 While the essential elements of the TIC have been maintained, criticism of the approach has  
20 brought about the revision of certain aspects of the framework. For example, Maskin and Tirole  
21 (1999) and Tirole (1999) raised three issues with respect to the internal consistency of the theory.  
22 First, the reconciliation of unforeseen contingencies in long-term contractual relations is seen difficult  
23 when individuals are assumed to be rational and uncertainty is ruled out. Contingencies can at worst  
24 be ex ante indescribable in which case the payoff structure for every possible state of the world could  
25 be estimated using dynamic programming or ex-post renegotiation given symmetric information.  
26 Second, the dependence of the TIC on non-contractible investments is viewed to be inconsistent with  
27 the assumption of symmetric information. Third, the assertion that [some] information is unverifiable  
28 is problematic. Parties may not agree on what transpired ex-post but this is only possible i) if there are  
29 information asymmetries which are assumed away by GHM or ii) they interpret facts in different ways  
30 which implies bounded rationality, also assumed away by GHM.  
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While in their 1988 paper, Hart and Moore pointed to the difficulty of modelling incomplete contracts with uncertainty and bounded rationality, their later work (2007, 2008) aimed to deal with some of the criticisms directed at their work. In particular, they introduced a degree of uncertainty, dropped the assumption of non-contractible investments in transactions and eliminated the reliance of their conclusion regarding shading or ex post inefficiency on those assumptions. Instead, they asserted that the tendency of ‘shading’ in long-term contracts was linked to the parties’ ‘feelings of entitlements’, which they form with reference to contracts, instead of non-contractible investments. Distinguishing between perfunctory and consummate service provision it is argued that when the outcomes of trade and the sense of entitlements of the parties are not aligned, the aggrieved party will provide perfunctory service which complies with her contractual obligations but is not the best service feasible under the same cost structure. After the uncertainty about values and costs is resolved, ex-post inefficiency may not be eliminated by renegotiation when value from the service is greater than its cost because the buyer will feel entitled to a price close to cost while the seller will want a price close to the value of the service. Hence, one of the parties is expected to shade following renegotiation.

The theory of incomplete contracts has been used to explain various economic phenomena such as intra-firm trade and predominance of debt finance (Aghion and Holden 2011). In contribution to the property rights theory, the TIC scholars have also argued that the choice between public and private ownership could be made with reference to the cost and benefits of outsourcing with incomplete contracts versus provision under uniform ownership. This is because contractual incompleteness bestows residual control rights to asset owners for circumstances that are unspecified in contracts and distorts the incentives to invest. The allocation and use of these residual rights influences the optimality/efficiency of performance. Outcomes, when contracts are retained, depend on the contract, commitments about renegotiation and the realised state of the world but underinvestment by both parties is a possibility. Hence, integration (ownership of all activities by one party) is seen as a potential solution in the presence of incomplete contracts.

Describing efficiency improvements in relation to cost reductions and/or quality enhancement and assuming neither are contractible ex-ante because costs and benefits are non verifiable (though observable), the theory envisages superior performance under private ownership (Hart et al 1997).

This prediction is based on the view that any undertaking by a public employee for better performance is subject to approval and even if approved, the rewards do not fully accrue to the public manager as all or part of the benefits are expropriated by the principal. This is dubbed as the ‘hold-up problem’ in the public sector. The private contractor is assumed to be less subject to approval and hold-up. This leads the proponents of the TIC to reach the general conclusion that the incentives for efficiency improving efforts are greater under private ownership unless the social gains from cost reduction is small and they are offset by the negative impact of cost cutting efforts on quality (quality shading).

The scholars of TIC distinguish themselves from agency theorists –who focus on information asymmetries and are said to assume complete contracts (Hart 2003). In reality, the inefficiencies associated with contractual incompleteness are recognised by different schools of economic thought, including transaction cost economists (e.g. Williamson as cited above) and agency/ incentive theorists such as Laffont (1987, 1992 with Green). Nevertheless, they have not considered privatisation as a unique solution to contractual incompleteness.

### **3. An application: the management contract in the Ghanaian water sector**

#### *3.1. Background and overall performance results*

Ghana gained its independence in 1957 but remained as a low income country with economic progress in some years and setbacks in others. Like many other developing countries it went into a prolonged recession and austerity phase in the 1970s and 1980s. Various reform programmes since then have adopted an increasingly neo-liberal orientation under the influence and direction of the World Bank and the IMF. The recovery has been very slow with declining per capita incomes re-attaining their 1960 level of 280 USD (in constant prices) only in 2004. Currently, about half of the population is classified as poor with less than \$2 a-day in purchasing power parity terms (World Bank 2012).

The endeavours to introduce private sector participation (PSP) into water sector have been part of the wider liberalisation trends in Ghana. The sector was restructured through redundancies and separation of urban water from unprofitable elements of the services (i.e. sanitation and rural supply), which were retained within the public sector in order to attract private investors to the more commercially viable urban water element. The initial attempts for a 20-year lease contract was abandoned in favour of a five-year management contract (MC) in 2003 as a result of suspicions of corruption noted in media at the time, substantial opposition to the PSP process and the tendency of international firms for lower risk exposure in water and sanitation after a number of failures in other developing countries (Amenga-Etego and Grusky, 2005, Aryeetey and Ahene 2005, Fuest and Haffner 2007, Eguavoen and Spalthoff 2008).

Following the protracted and controversial development of the PSP programme, a management contract was finalised and commenced in 2006 with Vitens of the Netherlands and Rand Water of South Africa, under the moniker Aqua Vitens Rand Limited (AVRL).<sup>2</sup> The grantor of the contract, Ghana Water Company Limited (GWCL), remained responsible for investment and monitoring the operator (the AVRL).

The AVRL was contracted to improve the performance of the state owned company in the following areas (GWCL 2005):

- i) reduction in non-revenue water<sup>3</sup> by a minimum of five per cent per year
- ii) increase in collection rates
- iii) reduction in chemical and power consumption in production
- iv) improved customer response
- v) reduction in water consumption by the public sector entities
- vi) maintaining water quality according to the established standards

[Table 1 - Key Performance Indicators of Ghana Water Company ]

Under the management contract, there have been improvements in very few areas. For example, although the unit electricity costs have gone up, the Technical Auditor's Report for the year 2010



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3 indicate that the quantity of power consumption (i.e. kWh/m<sup>3</sup>) declined significantly since the  
4 beginning of the MC, pointing to contractual compliance in this area. The anecdotal evidence also  
5 suggests that some progress has been made in customer care as well as customer mapping through the  
6 use of a GIS system (Aquanet 2009, SEC 2011).  
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11 However, when assessed against the majority of other contractual targets, the performance of the  
12 Ghana Water Company either deteriorated or did not change significantly after the introduction of  
13 private management in 2006. This is demonstrated by the data in Table 1. The trends in key indicators  
14 show that improvements were already underway in the pre-contractual period due to restructuring.  
15 The company failed to achieve the contractual target of five percent reduction in non-revenue water  
16 (NRW). There were notable improvements in revenue generation, billing and collection in the post  
17 contract period largely because of a cumulative tariff rise of 105% after the introduction of the  
18 management contract. However, the unit costs as well as the chemical consumption both in terms of  
19 cost and quantity increased. Contractual requirements for water quality have been breached by the  
20 private contractor with extensive noncompliance in terms of the bacteriological and chemical content  
21 of the water produced and the number sample analyses carried out. The performance of the AVRIL for  
22 reducing water consumption of public sector organisations and improving customer response could  
23 not be assessed because of lack of metering and absence of established reporting systems on customer  
24 complaints, respectively (Fichtner 2010).  
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40 In terms of access to safe water, a conspicuous progress has been made over the last several  
41 decades in Ghana but not much is owed to the privatisation process. Proportion of total population  
42 without access to safe water declined from 47 per cent in 1990 to 14 per cent in 2010 (World Bank  
43 2012). Nonetheless, much of this achievement has been through increase in collective water facilities.  
44 Proportion of urban population with piped supply and residential connections, for which GWCL and  
45 later AVRIL were responsible, declined from 41 per cent 1990 to 33 percent in 2010 (UNICEF and  
46 WHO 2012).  
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54 The level of poor performance by the private contractor in comparison to the prior management  
55 is even more serious given the fact that its operations started in an environment where more resources  
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were available, debt and workforce restructuring –as an important cost cutting exercise– had taken place and the number of water systems had been reduced.

As a consequence, when the AVRl’s contract reached the expiry date, the operational management of the urban water sector reverted back to the public sector despite the management contract had explicitly envisaged a lease contract in the aftermath. The important question at this point is then why GWCL or other public agencies could not reinforce the realisation of targets earlier through their supervisory and monitoring role or hold the private operator accountable for its failure to comply with the contractual requirements. In the next section, we attempt to answer this question by discussing contractual basis of the poor performance by the private operator.

3.2. *The post mortem: the nature of ‘incompleteness’ of the management contract*

The contractual problems in the Ghanaian urban water sector had a number of elements. The first crucial flaw in the contract was that it left the *baseline data* for many operational indicators, against which the performance of the operator could be assessed, to be established and agreed typically within three, six or twelve months from the commencement of the private operator (GWCL 2005). This was accounted for by sub-standard metering, both in terms of coverage and reliability (Fichtner 2007). For example, the contract required NRW to be reduced by, at least, five per cent per annum but did not state the level from which it was to be lowered. In the absence of appropriate baseline, the operator pleaded for exoneration on various grounds, in particular, absence of full and effective metering.<sup>4</sup> With the operator dragging its feet on NRW, agreements on the finer details of implementation of the NRW targets were still pending as of 2010. Indeed, as exemplified in Column 4 of Table 2, the tale was similar in all other aspects of performance monitoring. As late as 2010, one year before the expiry of the contract, the agreements between the grantor and the operator were still pending on the details of indicators, baselines, penalties and incentives.

Secondly, the contract contained many *vague terms* that led to differences in interpretation and created difficulties in contractual implementation. For example, the operator was required to take certain decisions ‘in consultation with’ the GWCL. This created complications for final decisions

when consultation did not result in agreement for action. Other problematic terms, that generated disputes between the grantor and the operator, included 'prudent spending' and 'reasonable and necessary costs', 'key operator staff', 'priority customers', 'suggested capital investment reports'.

The contract also defined the relationship between the parties in an ambiguous way. In section 12.4, it had described the status of the operator as 'an independent contractor' not an agent or partner of the grantor. This proved to be thorny, not least because the GWCL had been assigned a 'supervisory role' in section 4.5 of the contract but also the two bodies had to operate interdependently in a wide range of areas such as technical and financial reporting (since GWCL's reporting to other public institutions depended on the AVRL's reporting), management of human resources (since GWCL was still the employer of the staff seconded to the AVRL) and investment planning.

[Table 2 A snapshot of issues in the implementation of the management contract]

Thirdly, the contract included some financial *penalties and incentives*, beyond the management fee, for the private operator to achieve the intended improvements. Non-compliance with contractual requirements with respect to the treatment plant, water quality, NRW, receivable accounts and customer response were subject to penalty reduction from the Operator's Base Fee. Nevertheless, the penalty reduction was never applied during private management in spite of widespread contractual non-compliance. Several factors accounted for this. Foremost in this respect was the fact that, the verification of non-compliance depended on reporting data for identified indicators but the contract had specified no penalty for non-reporting. For example, the MC had imposed penalty if water quality standards were breached for two consecutive days and average response to customer inquiries exceeded 48 hours. Despite the fact that the operator breached the standards, the penalties could not be applied because it did not provide data with sufficient detail to establish if the contractual limits had been surpassed (Fichtner 2010). Moreover, the contract, peculiarly, required the operator to propose the extent and nature of penalties in some cases. For example, the penalty for non-compliance with the NRW reduction target was left to the operator to propose. Predictably, no agreement was reached between the parties in this respect until the expiry of the MC. In addition, the absence of, and

disagreement on, baselines and delays with metering made it impossible for penalties to be implemented.

Furthermore, the Clause 5.1.3 (vi) in the contract relinquished any penalty for the Operator if failure to meet service standards is caused by ‘the existence of a Snag Item which cannot be reasonably cured by minor works that can be financed by the RRR Fund’ (GWCL 2005: 13). However, the MC left the *identification of ‘snag items’* to the operator in its Initial Review Report, subject to confirmation by the technical operator. This presented the operator with potential for opportunism as acknowledged by the Technical Auditor, and hence undermined the intended outcomes of the MC.

“...it is clear that snag items are a tool of the operator to avoid penalties imposed in the contract. In order to achieve good performance within the execution of the management contract, the snag items should be defined in a reasonable way so that they will not form insurmountable obstacles which cannot be handled by both parties.” (Fichtner 2007: 4-1)

Indeed, the AVRL, in its Initial Review Report (AVRL 2006) presented ‘everything as ‘snag’ as if it had taken over a dead body’, in the words of senior GWCL managers. The technical auditor also complained about the long list of snag items and lack of sufficient detail about them in the review document, which delayed the approval.

Fourthly, the contract assigned the full *control of cash accounts* (namely, Revenue Collection Account or the RCA, as well as the RRR Fund, financed by the donor grants) to the operator following the advice of the World Bank for minimising the interventions of the grantor and ‘the smooth operations of the private company’ (World Bank 2004). However, GWCL’s lack of control over the RCA coupled with fuzzy terms in the contractual spending hierarchy (such as ‘reasonable and prudent maintenance costs’) meant that the operator had very little incentive for surplus accumulation and transfer to the grantor. Lack of revenue transfer became a major source of grievance for the GWCL as it was under pressure to fund 65 to 75 percent of the required investment of around 100 million USD per annum.<sup>5</sup> Problematic disbursement of funding and associated transfer of revenue from operator to grantor is validated by press reports.

‘[The communications manager of the operator] emphasized that profits were given back to GWCL to invest in capital investments in the water sector, such as the water treatment plants and laying of pipes’. However Managing Director of GWCL...insisted that GWCL has not taken any such sums of money from AVRIL. ‘If any such profit would be declared, the certification should have been done. This is why we have not made any public comments on that statement.’ (GhanaWeb, 13 May 2009)

Finally, another critical drawback in the design of the contract was related to *human resources*. The section 12.6 indicated that the MC superseded all prior documents, including minutes of negotiations, bidding documents, schedules which contained required or proposed staffing levels and qualifications of the operator’s managerial staff. Because of this crucial omission it is confirmed by the GWCL as well as the SEC (2011) that the senior management positions were filled in with personnel, lacking adequate experience and appropriate qualifications after the award of the contract.

#### **4. A critical assessment of the theory of incomplete contracts in the context of water privatisation in Ghana**

##### *4.1. Are future contingencies the only cause of contractual incompleteness?*

Recall that in the TIC incompleteness occurs where rational parties to a contract cannot specify all potential states of the world in the face of future contingencies. This difficulty might be due to uncertainty (not knowing the outcomes) or the high cost of specifying every future eventuality and the related division of surplus. While these factors may be important in general, in the case study under investigation here, neither have been the decisive factors for the incompleteness of the management contract. Not a single item which we discussed in Section 3.2 above pointed to the difficulties associated with future contingencies in the case of private MC in the water sector in Ghana.

The lack of baselines in the contract and the problems associated with them could have been avoided if the public authorities conducted measurements first, following full metering at the points of

bulk distribution. Snag items could have been identified and their implications incorporated into the contract. The contract could have specified the penalties and incentives rather than leaving them for the operator to determine. The ambiguities in the terms and conditions could have been reduced had legal experts and advisers been more closely engaged within the process of contract development.

Why did the Government of Ghana proceed with this contract? We asked this question to the former and current senior managers of the Ghana Water Company, the grantor of the management contract, and broadly received two types of responses. Those who were part of the contract development team indicated that the contract was intentionally incomplete with certain aspects left for the private contractor to specify in order to avoid future disputes over key baselines. It is difficult to explain the foundation of this trust especially in a context where no prior business relationship existed with the bidding parties. If indeed this naive and misguided approach informed the whole process of contract development, this signals lack of capacity, expertise and experience in the public sector for the design of contracts involving important public services.

The second response, although is not necessarily an alternative explanation to the first, is that the contract was rushed and pushed through as a matter of political decision. The private sector participation in the water sector would have brought in over 100 million USD worth of grant from the World Bank as the major financier. Alignment with World Bank's economic stance in policy making would have eased the access to funding from multilateral financial organisations as well as the bilateral donors. There is some support for this in the literature. For example, Fuest and Haffner (2007) and Whitfield (2006) argued that the influence of the World Bank was sanctioned by its financial and technical support for privatisation through funding of the Water Sector Restructuring Secretariat and commissioning of pro-privatisation consultants. Prior to privatisation, the Ghana Water Company was known to have good performance in engineering and technical aspects of operations (Bayliss & Amenga-Etego 2007). However, it needed financial resources for the replacement, rehabilitation and extension of the water network; workforce restructuring and a system of effective billing and customer mapping in order to stem the losses and reduce the debt of the company. The necessity to access funding from the World Bank dictated the choice of the reform in the water sector and led to a hasty process of contractual design with very little sign of due diligence.

The defective nature of the contract was abundantly clear in the earlier stages of the implementation. This is demonstrated by a series of contractual renegotiations that have started as early as 2007, first with a retreat in the town of Ho in the Volta Region, a year after the award of the contract, to redress the issues described in Section 3.2. Later two Memorandum of Understanding documents were produced. However, it was the contract not these agreements that were legally binding, hence, they had limited force. There were attempts to amend the contract as late as 2010, just one year before its expiry. The key documents, including the World Bank project appraisal document (2004) and the Management Contract (GWCL 2005) explicitly indicated that at the expiry the Government of Ghana would issue an affermage (i.e lease) contract for the water sector. There is perhaps an irony in this matter in that a contract that could not define the current circumstances and five-year targets for the private operator, zealously prescribed the future status of the sector.

#### *4.2. Validity of the proposition that privatisation could be a remedy for 'the hold-up' problem*

As outlined previously, the scholars of the TIC assert that efficiency enhancements under public ownership are difficult because innovative or cost cutting efforts of public managers are subject to approval and hold-up unlike their private counterparts who have better incentives for performance improvement. Hence is the conclusion that 'the case for private arrangements is extremely strong'<sup>6</sup> for services such as prisons, schools, garbage collection and weapons procurement unless the social gains from cost reduction is small and they are offset by the negative impact of cost cutting efforts on quality (Hart et al 1997: 1156).

Contrary to the arguments by Hart et al (1997), in the case of Ghana urban water, it was the private operator, which in fulfilling its contractual obligations held-up the GWCL. As discussed in section 3.2, it did not bring in appropriately qualified and experienced personnel. It deliberately maintained the contractual target for NRW reduction as a disputed terrain, a strategy that was considerably successful in circumventing its responsibility. The unit cost of production increased and water quality deteriorated under private management (Fichtner 2010, SEC 2011). No significant innovation has been noted outside those related to the availability of funding. The private operator

could not be held accountable as a result of the contractual incompleteness and the renegotiation attempts by the public authorities have had no impact since the private operator, with the guaranteed management fees, was better off with a defective contract than a modified one with better defined obligations and higher accountability.

Several methodological issues inherent to the TIC account for the divergence of practical outcomes from the theory. Firstly, the factors that may lead one party to hold-up another in a contractual relationship are not fully explored in the theory. The problem is formulated in the TIC as one of incentives and it is assumed that the move from an employment contract between state and public manager to a procurement contract between private corporations and state would activate the mute incentives that are presumed to exist in public sector employment contracts. This view is rather simplistic and problematic. The employment contracts beyond the private participation contracts are disregarded largely because production relations are left out of analysis for simplicity. Incentive issues in owner-manager-employee relations are well established –by the literature on agency and asymmetric information– and not only do they prevail in public but also in private sector organisations (Sappington and Stiglitz 1987).

Secondly, if contractual incompleteness brings in uncontracted benefits for the private party, incompleteness itself can lead private sector to hold-up the state agency. When this is the case, the hold-up problem between public principal and public manager would be replaced with the hold-up problem between the private operator and its public counterpart after private participation. This issue is side-stepped in TIC through a convenient mix-up of the term ‘ownership’ with the vaguer concept of ‘private arrangements’ which in this context could be used to various effects including the following.

- i) Full transfer of ownership and control to private sector as in privatisation of competitive industries
- ii) Regulated private ownership as in water and electricity utilities



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3       iii) Private (and regulated) participation in the delivery of public services through long-term  
4               contracts with or without investment responsibilities (e.g. concession, lease and management  
5               contracts)  
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9       Of all these cases, only in the first one (i) direct exchange takes place between producers and  
10       consumers without state playing an intermediary role in the process. In the second case (ii), the  
11       contracts between users and producers are products of incessant regulation where a public agency  
12       would determine various aspects of service delivery which may include the rules of conduct, pricing,  
13       rate of return, quality and quantity of goods and services. In private participation projects (iii) for  
14       public services at least three sets of contracts are maintained: between suppliers and consumers;  
15       between the state and the suppliers; and between the contractual parties of the outsourced services and  
16       their employees.  
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19       For most public services, including prison services, garbage and waste collection, health,  
20       education and water and sanitation services full private ownership or control is not an option. State (or  
21       its agencies) is a primary party in contractual relations either as the funder (procurer) or the regulator  
22       of the service. Hence, private participation quite often transforms the contract between the politician  
23       and the public manager into another contract between the politician (or its representatives) and private  
24       manager. One incomplete contract is replaced with another incomplete contract. Hence, if contractual  
25       incompleteness is a source of hold-up, one cannot consistently argue that private ownership is superior  
26       to public ownership for public services on grounds of contractual incompleteness.  
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#### 43       4.3. *Suitability of methodological individualism for the analysis of public services* 44 45 46

47       The preoccupation of the proponents of the TIC with proof as in natural sciences lead them to  
48       utilise ‘methodological individualism’ in that formal analytical frameworks are developed and the  
49       explanations are provided on the basis of contracts between rational individuals alone.<sup>7</sup> Scientific  
50       proof necessarily requires isolation and abstraction though this may be at the cost of its relevance and  
51       validity for complex social systems. The assumption of rationality in the TIC serves to delineate  
52       behavioural context for decision making (choices). Individuals are assumed to be rational (self-  
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interested and optimising) which ensures efficient outcomes when contracts are complete and vice versa through potential opportunism, shading, etc. when contracts are incomplete.

This analytical framework cannot be readily applied to the public services for various reasons. Firstly, not all decisions taken by public entities are relevant for utility maximisation by its own workers and managers. When it is relevant, it is simplistic and unrealistic to assume that choices made by the public sector are always the product of pure individual self-interest and utility maximisation. For example, a frequently raised question in the literature is why ‘rational’ (self-interested) public managers privatise services that lower their authority and rid them of opportunities for rent-seeking (e.g. Margolis, 1975; Dunleavy, 1985 & 1986). Other motivations such as altruistic ethos (Kolm and Ythier 2006) may be as important in underpinning the behaviour of public sector managers. Secondly, the extent to which the public sector managers can make ‘rational choices’ that maximise their personal objectives at the cost of public at large depends on the nature of institutions, ethos, rules and regulations and the extent to which they are benign, restrictive or prohibitive against opportunities for personal exploitation. The initial attempts of water privatisation in Ghana involving a lease contract could be seen in this light, when the whole process collapsed as a consequence of the role media and the NGOs played at the time with widespread reporting about the suspicions of corruption in the process of selection of Azurix (an Enron subsidiary) from amongst three bidders including Suez and Vivendi (Amenga-Etego & Grusky, 2005). Thirdly, the behaviour and choices of public sector entities is more complex and case specific than what is implied by the TIC model. The decisions in the management of public services can neither fully be explained by the preferences of the individuals working for those entities nor by the aggregation or the sum of those preferences. Besides, direct interferences due to political changes are at play in the decision making process. Indirect influence of both overt and covert forms is also sought by different interest groups.

Finally, unlike other mainstream perspectives which made use of terms such as social contracts and administered contracts (Goldberg 1976, Vincent-Jones 2006) to account for collective interests and role of government, political sterility of the TIC is a critical weakness for its application to public policy issues. It is difficult to explain public service contracts without reference to a wide range of political interests and influences. Let us start with the question of who the contract parties are. Even

though they are often formally specified in long-term public contracts, there exist multiple layers of representation for both sides but certainly more so for the public counterparty. For example, the grantor of the management contract in Ghana, the GWCL, is an agent of the government that is supposed to be ultimately representing wide range interests of different classes and groups. In fact, one could view the whole political and economic decision making process consisting of multitude of incomplete contracts between different stakeholders, e.g. voters and government, government and its agencies, public agencies and private companies. More complicating but obvious is the fact that political representation of different interest groups is neither comprehensive nor unremitted even in countries with robust democratic institutions. This is reflected well, for example, by the deep downsizing of the public sector after the 2008 financial crisis in the UK which the head of the Church of England described as "radical, long-term policies for which no one voted" (Williams 2011).

The political nature of decisions in public services (e.g. privatisation of one form or another) arises from the following. Many economic or managerial decisions at macro or micro level are likely to have welfare and distributional consequences, which for some are bound to be adverse. The degree of politicization of these decisions would depend on a number of factors, especially, the nature of services in question and the market structure. Decisions about ordinary goods and services with plenty of providers and substitutes are likely to be less politicised than those involving essential services like water with life sustaining character, limited substitutes if any (there are alternatives to public supply in rural areas and to wealthier households) and single providers, operating nationally or in large geographic areas. More adverse outcomes (e.g. unaffordable service, service cuts due to non-payment, low quality of water) create greater scope for deeper politicisation, depending on the size of the population affected, presence or absence of safety nets and democratic processes for political participation.

A reflection on the importance of these issues in public services could be found in one of the very few applications of the TIC to the case of public goods in developing countries by Besley and Ghatak (2001) who exclude for-profit private organizations from analysis as they are considered to have no intrinsic interest in welfare. Instead, they argue that when contracts are incomplete, ownership for the supply of public goods should be assigned to the non-profit NGOs that 'care' more

about investments in public goods.<sup>8</sup> Estache and Wren-Lewis (2009, p. 759) also consider distributional consequences of incomplete contracts in the context of infrastructure privatisation and recommend regulatory interventions in this area.

In Ghana, too, the welfare and distributional concerns have been well justified with around 67 per cent of urban population lacking access to piped water (UNICEF and WHO 2010) and pressing problems of affordability. The burden of minimum required water consumption (25 litres per person per day) on household budget has been presented in Table 3. Utilising the widely cited 3 per cent benchmark ratio of household water expenditure to income for the assessment of the affordability of water tariffs (Sawkins and Dickie 2005, UNDP 2006), it is clear that the cost of minimum water consumption for the 20 percent of the households at the bottom of income distribution was unaffordable even for those using public standpipes.

Table 3 - Share of the cost of minimum required water consumption in household income (2008)

At the other end of the spectrum of interests are powerful multinational companies that have dominated these sectors following the privatisation of utilities that opened up new markets and profit opportunities worldwide in the last two decades (Hall 2006). The opposition of many civil society organisations and grassroots movements to the promotion of public services as outlets of profit opportunities in many countries reflect the distributional conflict between different interests groups (Oscar and Lewis 2004, McDonald and Ruiters 2005, Hall et al. 2005). In the case of Ghana, grassroots opposition to private participation in the water sector has been significant as reflected by wide ranging campaigns and interventions of the National Coalition Against Privatisation and ISODEC (e.g. Public Citizen, 2002; Fuest & Haffner, 2007).

This distributional conflict has also been reflected by the ideological stance on contractual choices involving public interest. We use the term ‘ideological stance’ to mean the provision of arguments to support certain interests and/or upheld certain ideas, if necessary, in dogmatic ways despite lack of supporting evidence and presence of logical flaws in those arguments. For example, as mentioned previously, the World Bank played an influential role for the introduction of private

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3 participation in the Ghanaian water sector. Indeed, the Bank has been pushing for various forms of  
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5 privatisation, in spite of widespread failures and rich evidence against it on the empirical front and  
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7 widespread failures. In sub Saharan Africa as a whole, over sixty per cent of the countries have  
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9 implemented reforms involving management and lease contracts in the water and sanitation sector in  
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11 the past few decades. More than 70 percent of these contracts were either cancelled or not renewed  
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13 (Dagdeviren and Robertson 2011, p. 494), reflecting considerable failure with PSP projects in the  
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15 region. And yet, the Bank continued supporting similar programmes in the continent. In the last two  
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17 decades, its rhetoric moved away from policy-conditional lending in favour of nationally developed  
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19 and owned programmes (e.g. Groom et al, 2006; Ehrhardt et al, 2007; Bayliss and Fine, 2007). In  
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21 reality, fund seeking public authorities in developing countries promise to adopt economic policies  
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23 promoted by the World Bank in order to access finance. In other words, previously prescribed policies  
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25 by the Bank that formed the basis of the policy conditional lending are now submitted as 'nationally  
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27 owned' and adopted policies by the governments themselves. Public private contracts are  
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29 implemented to comply with lenders' implicit requirements not as a rational response to circumstances  
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31 to improve the performance of the resource-stricken public water companies.  
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## 35 5. Conclusions

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39 The theory of incomplete contracts, as part of property rights theory, suggests that when  
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41 contracts are incomplete, allocation of residual rights to one party is more efficient. The scholars of  
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43 the TIC have contributed to the debate on public versus private ownership by arguing that efficiency  
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45 gains are likely to be greater under the latter because of the hold-up problem under the former. In this  
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47 paper, we re-examined the theory of incomplete contracts in the context of public services in  
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49 developing countries. We do not dispute that long-term contracts are incomplete but we argue that the  
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51 TIC is flawed in its conclusions on public versus private ownership. Our arguments are derived from  
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53 the evidence contained in a case study of public service contract in the urban water sector of Ghana  
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55 and a critical assessment of the theory, in particular its assumptions and methodology.  
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Several arguments in the paper are worth highlighting. Firstly, private participation in most public services does not involve full transfer and control of ownership. Instead, one incomplete contract is replaced with another, hence, the hazards associated with contractual incompleteness remains. Under such circumstances, the problem of hold-up and opportunism is not resolved through private sector's engagement, and likely to continue. Secondly, the vogue of scientific proof amongst TIC scholars and their reliance on methodological individualism results in fascinating outputs with little relevance for complex social systems. In this paper, we found that there is very little cross over between the foundations of the TIC and the case study under investigation. For example, Hart and Moore (1988) indicated that their work does not take into account bounded rationality and uncertainty because of the difficulty of modelling them. We argued that this is not the only problem. Private participation in public services cannot be understood without taking into account the non-contracted social, political and institutional factors within which they are placed. In the case study of Ghana, problems associated with incompleteness perpetuated under private management not as a consequence of future contingencies but social, political and institutional factors such as the defective design of the management contract, reflecting weaknesses in institutional capacity; the influence of the World Bank in the choice of PSP through its financial lending; lack of due diligence as a consequence of hasty development process to access the donor funding and social welfare and distributional consequences of privatisation which generate substantial opposition to the privatisation of public services.

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## FOOTNOTES

1. See, Grossman and Hart (1986), Hart and Moore (1988 and 1999).
2. Each partner company is publicly owned within their country of origin.
3. Estimated as  $[(\text{production} - \text{sales})/\text{production}]$  and as such incorporates leakages, illegal connections, unbilled water and uncollected bills.
4. The Schedule 4Cb of the contract required the operator to calculate NRW “in the absence of complete metering” (GWCL 2005:42), which is possible with portable ultrasonic (UFM) or ‘clamp on meters’. AVRL, despite using UFM, never reported the estimates to the grantor. The operator also argued that the achievement of NRW target depends on capital investment which was not under its control (AVRL 2006). However, the Clause 5.1.6 of the contract had de-linked operator’s performance from capital investments in the sector (GWCL 2005:13) as the operator had full access to the revenue account as well as the Repair, Replacement and Rehabilitation (RRR) Fund, comprising USD13 million donor grants..
5. The Government of Ghana funded around 4-15 percent of total annual investment in the urban water sector (MWRWH 2009: 51) while the World Bank’s Urban Water Project provided the remaining 20 percent.
6. The emphasis is added.
7. For a detailed discussion of the drawbacks associated with this approach see Hodgson (2007) and Udéhn (2001).
8. While the work by Besley and Ghatak (2001) is important for delineating the importance of social welfare and distributional issues, there are a number of problems with their argument. The first concerns the empirical validity of the assumption that the governmental counterparty values public goods lower than the NGOs as there is likely to be a vast variation in this respect amongst different governments. The second is related to the problematic use of the concept of public goods. Throughout the paper, only one example of public is given, that is, education which cannot possibly be classified as public good using the standard textbook criteria of non-rivalry and non-excludability. Neither would other essential services such as health, water and sanitation services qualify as such. In fact, there is hardly any good/service which falls under public good category. Hence, although universal and/or subsidised access to essential public services that satisfy basic needs in developing countries is

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important for social welfare and economic development, the concept of public goods cannot be invoked for its theoretical justification. Finally, the number, technical and financial capacity of NGOs required to deliver, presumably, a wide range of ‘public goods’ in a poor developing country context adds further to the problematic nature of this approach in terms of its policy relevance (unless foreign NGOs are inserted into the equation, but these also lack permanency in presence and finance). Besides, a development strategy that is dependent on the work of charitable organisations is rather problematic.

9. Household income is adjusted for urban areas. Minimum monthly cost of water is estimated as the minimum quantity of water consumption (i.e 25 litre capita/day x 30 x average household size) multiplied by the relevant tariff block.

## TABLES

Table 1 - Key Performance Indicators of Ghana Water Company

ITEM	UNIT	2003	2004	2005	2006	2007 (1)	2008	2009	2010 (1)	%change	
										03-05	05-10
Non Revenue Water	%	57.1	54.5	48.3	52.8	52.3	51.7	50.3	49.8	-15.4	3.1
Bill Collection Rate	%	76	83.7	89.1	95	89.6	90.7	79	89	17.2	-0.11
Cost-revenue ratio	%	96.9	90.3	97.1	108	83.3	86	84.9	-	4	-2.4
Unit Cost	□ / m <sup>3</sup>	0.20	0.22	0.26	0.30	0.27	0.40	0.39	-	30	50
Unit Electricity Cost	□ / m <sup>3</sup>	0.059	0.064	0.086	0.07	0.08	0.15	0.10	0.12	45.8	41.9
Unit Chemical Cost	□ / m <sup>3</sup>	0.020	0.016	0.023	0.03	0.03	0.03	0.04	0.04	15	78.3

Source: Ghana Water Company Limited, (1) Average tariff increased by 67% in 2007, 38% in 2010

Table 2 in the next page

Table 3 – Ratio of minimum water consumption cost to household income (2008)<sup>9</sup>

	Lowest Quintile	Highest Quintile
Households with metered supply (~0.66 - 0.91 cedi per m <sup>3</sup> )	6.2	0.8
Households with unmetered supply (3.89 per month)	5.5	2.6
Public standpipes (0.66 cedi per m <sup>3</sup> )	4.5	0.8

Source: Income data is from Ghana Living Standards Survey (2008). Tariff data is obtained from Public Utilities Regulatory Commission.

Table 2. A snapshot of issues in the implementation of the management contract

Subject	Clause	Brief description of contractual requirements	Implementation Status as of 2010	Performance as of 2010
Reporting	3A	Audited Accounts, Market Surveys, Suggested Capital Investment Reports (annual). Collection and Cost Summary (Quarterly). All submitted according to the instructions of and subject to the approval and verification of the Grantor.	Instructions were given by the Grantor on the format of annual reports. The operator did not comply and used its own format.	Audited accounts are regularly delayed, inaccuracies exist in financial reports, market surveys were never carried out, suggested capital investment reports were submitted.
Water Quality & Pressure	4Aa	Raw Water...shall meet the relevant standards of the WRC. Cost of compliance shall be borne by the Grantor.	Raw water quality required by the MC is considered to be minimum not ideal standard. In 2008, parties were still working towards an agreement on quality parameters and required analysis. Pressure at discharge points is no longer part of service standard.	<i>Treated water:</i> R-Chlorine values did not conform to the standards. E-coli & turbidity sample checks were lower than required. Penalty cannot be applied due to lack of detailed info. <i>Distributed water:</i> Non-compliance with sampling requirements. Ph & R-Chlorine standards not met.
	4B	Within six (6) months, the Operator will maintain water quality at all Headworks		
	5A2a	Operator shall forfeit a Penalty Reduction from the monthly payment of the Base Fee for each two days it fails to comply with 4 (B) regarding Water Quality at the Headworks.		
Chemical Usage	5B2	Within 12 months, the operator to present a plan for the use of chemical optimisation and incentive compensation for reduction for agreement with the grantor.	Indicators and baselines for performance assessment approved but agreement was pending in 2010	Chemical usage increased for all indicators. Supply of chemicals improved.
Treatment Plant Operations	4Da & c	Within 60 days, the Operator will provide the Grantor with meter specifications & locations. The minimum average daily production for at least 10 months per year will be at the level measured when the relevant bulk meter was installed or rehab. At rehabilitated or new systems, the Operator to maintain, on average for 10 months a year, the average daily production at a min of 90 % of capacity or 100 % demand	Commissioning of bulk water meters and calibration of baselines was still pending in 2010. Capacity utilisation rates are likely to be inaccurate. Updated capacities and relevant penalties have not been agreed.	Capacity utilisation declined from 2009. Of the 84 systems, only 24 complied with contractual requirements. No 'corrective or preventive maintenance' was carried out in distribution or production. The operation & maintenance procedures were not in place. Hence, even if were possible, not executed.
Non-revenue Water (NRW)	4C	Within 12 months, the Operator to submit a plan for reducing NRW. It will specify the estimation method in the absence of full metering, determine annual reduction targets (not less than 5% per annum) and propose penalty for failure. Implementation after the approval of the Grantor.	Agreement on targets and penalties was pending and bulk meters were still not commissioned. Measurement problems persist.	NRW for 35 systems where data was available was approx 51%. Of these, 21 systems did not comply with the MC criteria for NRW; 4 complied; 10 systems could not be assessed due to lack of comprehensive data.
Power Use	5B	Within 12 months, the Operator to submit a plan for reduction in power use & proposal for incentives compensation.	Agreement on the baseline & incentives was pending.	Total power consumption declined significantly in comparison to baseline year.
Public Sector Water Use	5B4a & b	Within 6 months, the Operator to submit a plan for the reduction of water consumption by public sector entities (for at least 3% over a baseline) for discussion and agreement.	Meter installation in public entities not completed; baselines not established; agreement on incentive compensation is pending.	This MC target could not be assessed due to lack of progress on implementation of metering etc.
Customer Response	4E & 5A2d	Within 6 months, the Operator to submit a plan to reduce average customer response time to 48 hours from month 24 onwards. Monthly penalty for failure is USD 1000.	As of 2010, time and calculation of penalties were not agreed between the parties.	Due to disparities in reporting between call center and back offices, the 48-hour response time target could not be measured

Source: Fichtner (2010) 4th Year Management Contract - Technical Audit Report for GWCL and World Bank, Accra



For Peer Review